

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Previously Presented) A method of wavelet filtering a digital image, the digital image comprising a plurality of pixels, the method comprising the following steps performed for each of one or more bands of pixels:

 retrieving a plurality of previous partial results from a local storage or a remote storage, said plurality of previous partial results comprising a pixel and a coefficient, the local storage having a greater bandwidth than the remote storage;

 inputting a current group of adjacent pixels in a current band;
 computing coefficients and a plurality of current partial results utilizing the current group of adjacent pixels and the plurality of previous partial results, the plurality of current partial results comprising a pixel and a coefficient;

 outputting the coefficients; and
 storing the plurality of current partial results in said local storage if said the current group of adjacent pixels is not a last group in the band, or in said remote storage if the current group of adjacent pixels is the last group in the band.

2. (Previously Presented) A method as claimed in claim 1, wherein said local storage is a register.

3. (Previously Presented) A method as claimed in claim 1 or 2, wherein said remote storage is an external buffer.

4. (Previously Presented) A method as claimed in claim 1, wherein the digital image is an original image and said wavelet filtering performs a forward wavelet transform.

5. (Previously Presented) A method as claimed in claim 1, wherein the digital image is a sub-band of an original image and the pixels are coefficients and said wavelet filtering performs a forward wavelet transform.

6. (Previously Presented) A method as claimed in claim 1, wherein the digital image is one or more associated sub-bands of an original image, and the pixels are coefficients and said wavelet filtering performs an inverse wavelet transform.

7. (Original) A method as claimed in claim 1, wherein said method further comprises:

repeating said retrieving, inputting, computing, outputting, and storing steps in sequence a plurality of times.

8. (Original) A method as claimed in claim 4 or 5, wherein said computing step is calculated in accordance with a 5/3 forward wavelet transform.

9. (Previously Presented) A method as claimed in claim 6, wherein said computing step is calculated in accordance with a 5/3 inverse wavelet transform.

10. (Previously Presented) A method as claimed in claim 4, wherein said computing step is calculated in accordance with a 9/7 forward wavelet transform.

11. (Previously Presented) A method as claimed in claim 6, wherein said computing step is calculated in accordance with a 9/7 inverse wavelet transform.

12. (Previously Presented) A method as claimed in claim 1, wherein the pixel and the coefficient of the previous partial results are, respectively, a last input pixel and a last high pass coefficient.

13. (Previously Presented) A method as claimed in claim 1, wherein the plurality of partial results comprises intermediate values.

14. (Currently Amended) Apparatus for wavelet filtering a digital image, the digital image comprising a plurality of pixels, the apparatus comprising:
means for retrieving, for each of one or more bands of pixels, a plurality of previous partial results from a local storage or a remote storage, the plurality of previous partial results comprising a pixel and a coefficient, the local storage having a greater bandwidth than the remote storage;

means for inputting, for each of one or more bands of pixels, a current group of adjacent pixels in a current band;

means for computing coefficients and a plurality of partial results, for each of one or more bands of pixels, utilizing the current group of adjacent pixels and the plurality of previous partial results, the plurality of current partial results comprising a pixel and a coefficient;

means for outputting, for each of one or more bands of pixels, the coefficients; and

means for storing the plurality of current partial results in said local storage if the current group of adjacent pixels is not a last group in the band, or in said remote storage if the current group of adjacent pixels is the last group in the band.

15. (Previously Presented) Apparatus as claimed in claim 14, wherein said local storage is a register.

16. (Previously Presented) Apparatus as claimed in claim 14 or 15, wherein said remote storage is an external buffer.

17. (Previously Presented) A computer readable medium comprising a computer program for wavelet filtering a digital image, the digital image comprising a plurality of pixels, the computer program comprising:

code for retrieving, for each of one or more bands of pixels, a plurality of previous partial results from a local storage or a remote storage, the plurality of

previous partial results comprising a pixel and a coefficient, the local storage having a greater bandwidth than the remote storage;

code for inputting, for each of one or more bands of pixels, a current group of adjacent pixels in a current band;

code for computing coefficients and a plurality of partial results, for each of one or more bands of pixels, utilizing the current group of adjacent pixels and the plurality of previous partial results, the plurality of current partial results comprising a pixel and a coefficient;

code for outputting, for each of one or more bands of pixels, the coefficients; and

code for storing the plurality of current partial results in said local storage if the current group of adjacent pixels is not a last group in the band, or in said remote storage if the current group of adjacent pixels is the last group in the band.

18. (Previously Presented) A computer readable medium as claimed in claim 17, wherein said local storage is a register.

19. (Currently Amended) A computer readable medium as claimed in claim 17 or 18, wherein said remote storage is ~~a remote storage~~ an external buffer.

20. (Previously Presented) A wavelet filter for wavelet filtering a digital image, the digital image comprising a plurality of pixels processed in one or more bands of pixels, the filter comprising:

a local storage for storing a plurality of previous partial results, the plurality of previous partial results comprising a pixel and a coefficient;

 a remote storage for storing a plurality of previous partial results, the plurality of previous partial results comprising a pixel and a coefficient, the local storage having a greater bandwidth than the remote storage;

 a controller for selecting the plurality of previous partial results from said local storage or said remote storage;

 a pixel input mechanism for inputting a current group of adjacent pixels in a current band;

 a lifting lattice of multiplier and adder units for computing coefficients and a plurality of current partial results utilizing the current group of adjacent pixels and the selected plurality of previous partial results, the plurality of current partial results comprising a pixel and a coefficient;

 output means for outputting the coefficients; and

 a controller for storing the plurality of current partial results in said local storage if the current group of adjacent pixels is not a last group in the band, or in said remote storage if the current group of adjacent pixels is the last group in the band.

21. (Currently Amended) A wavelet filter as claimed in claim 20, wherein said local storage is a register.

22. (Previously Presented) A wavelet filter as claimed in claim 20 or 21, wherein said remote storage is an external buffer.

23. (Previously Presented) A wavelet filter as claimed in claim 20, wherein said pixel input mechanism comprises a plurality of multiplexers for selecting in turn a group of pixels as the current group.

24. (Previously Presented) A wavelet filter as claimed in claim 20, wherein the digital image is an original image and said wavelet filtering performs a forward wavelet transform.

25. (Previously Presented) A wavelet filter as claimed in claim 20, wherein the digital image is a sub-band of an original image and the pixels are coefficients and said wavelet filtering performs a forward wavelet transform.

26. (Previously Presented) A wavelet filter as claimed in claim 20, wherein the digital image is one or more associated sub-bands of an original image, and the pixels are coefficients and said wavelet filtering performs an inverse wavelet transform.

27. - 29. (Canceled)